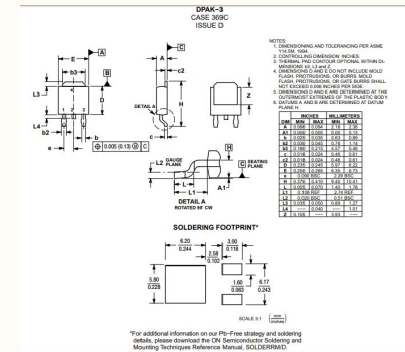
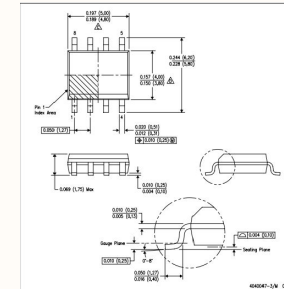
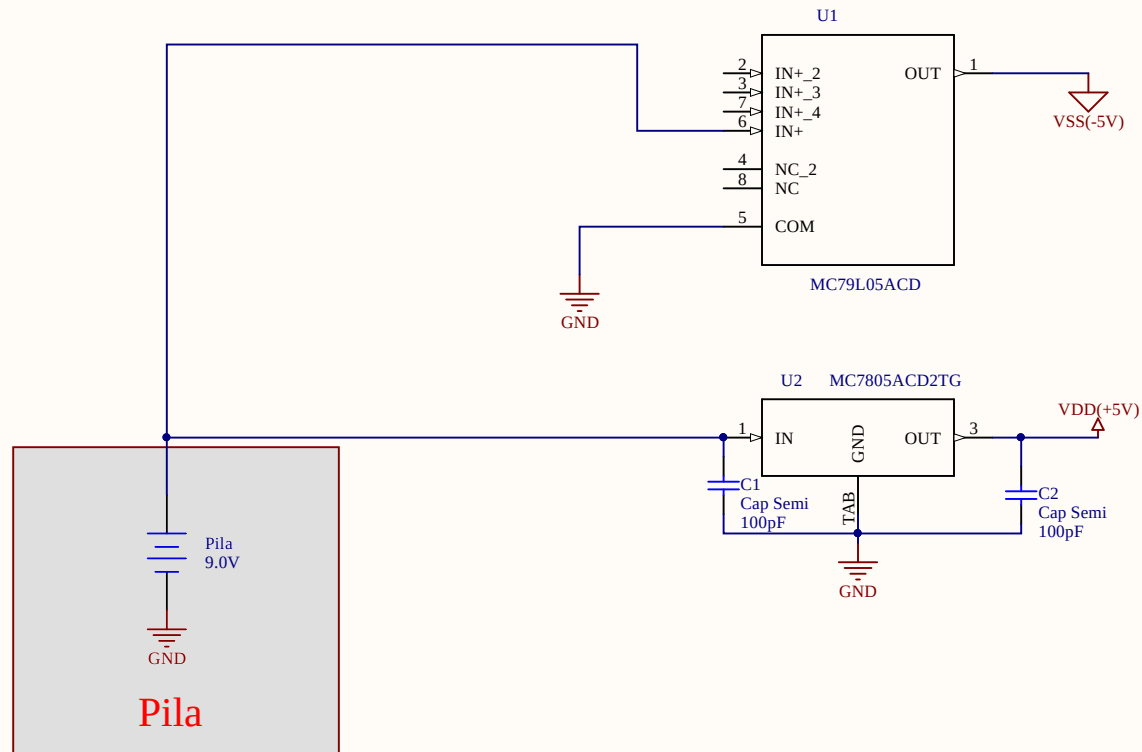
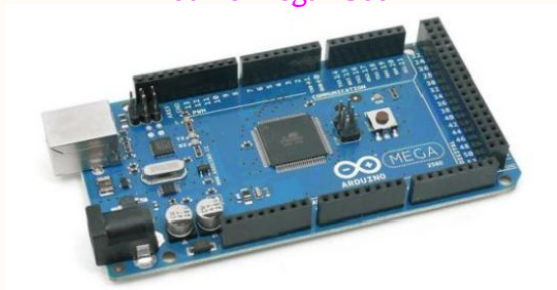


## Convertidores DC-DC



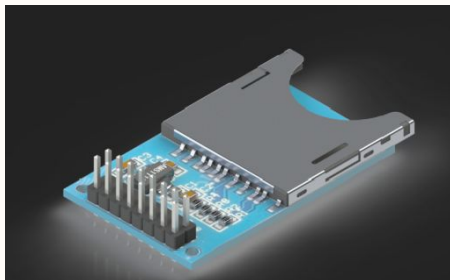
|                                         |                                  |                          |
|-----------------------------------------|----------------------------------|--------------------------|
| Title                                   |                                  |                          |
| Alimentación sistema electrocardiografo |                                  |                          |
| Size                                    | Number                           | Revision                 |
| A4                                      |                                  | V_03                     |
| Date:                                   | 03/01/2019                       | Sheet of                 |
| File:                                   | C:\Users\...\alimentacion.SchDoc | Drawn By: Alicia y Jorge |



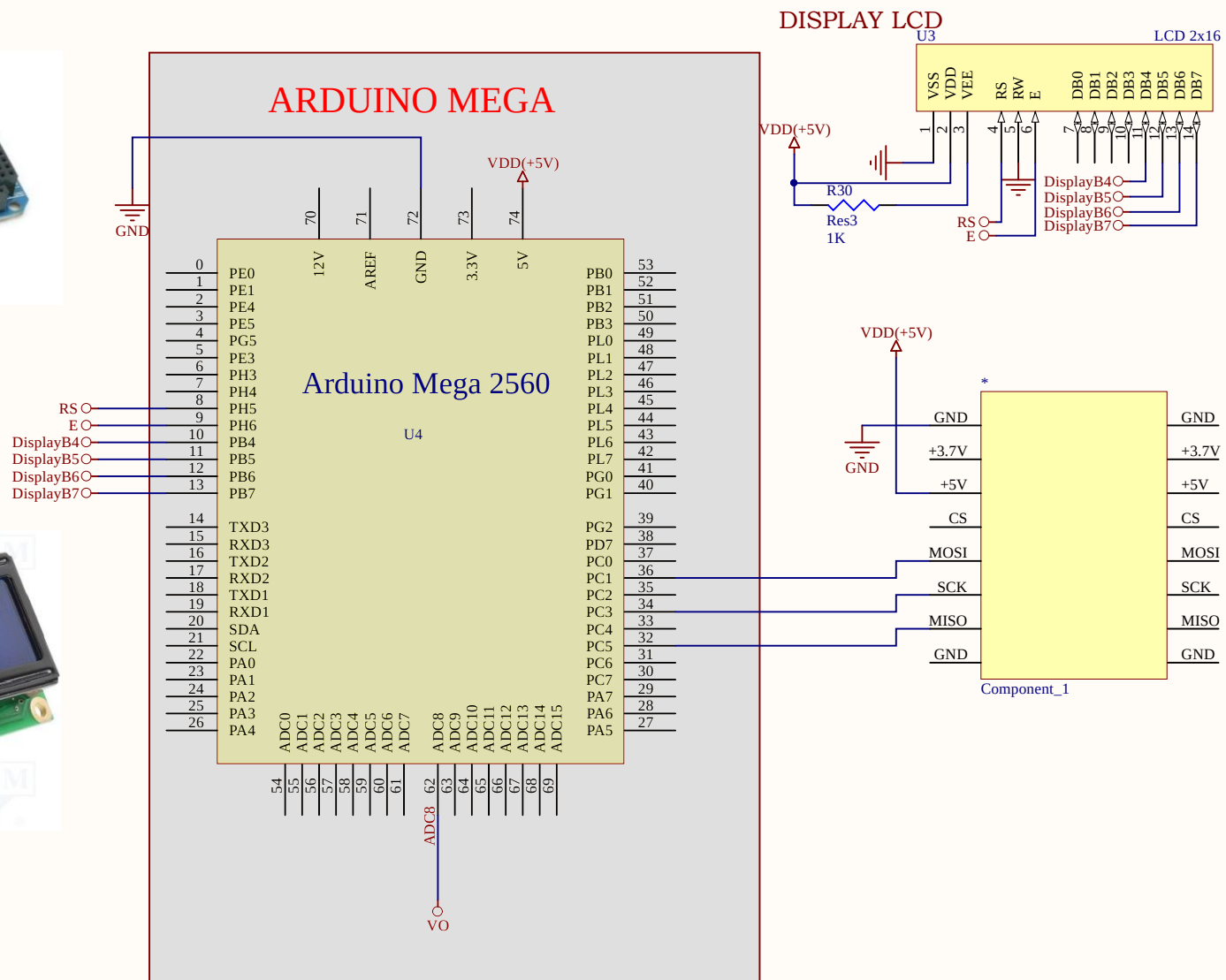
Arduino Mega 2560



Display LCD

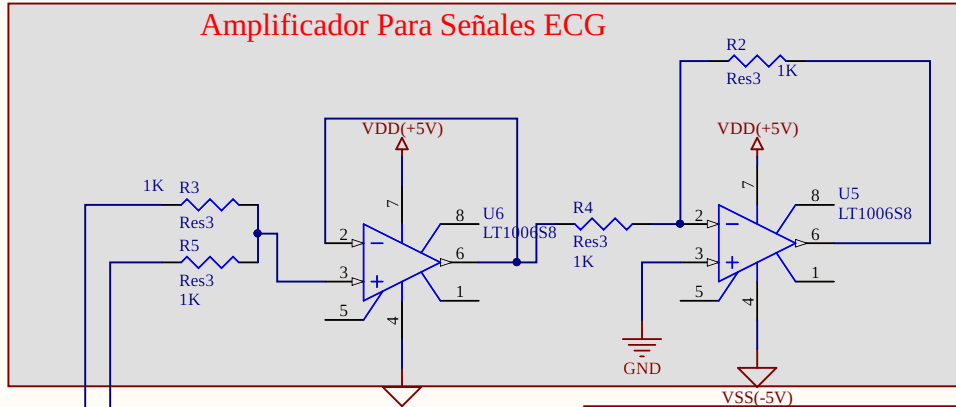


Lector Tarjetas SD



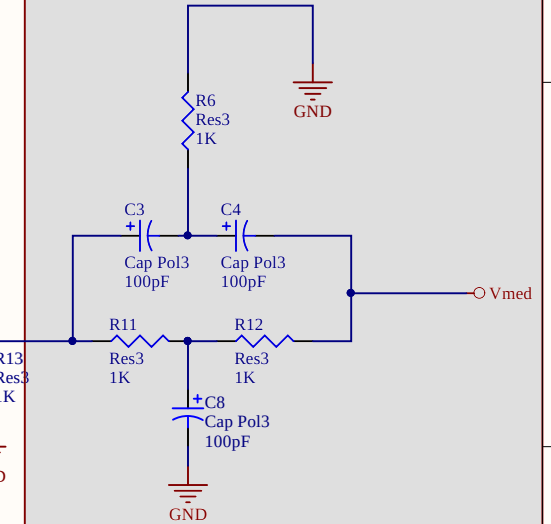
|                                                  |                             |                          |
|--------------------------------------------------|-----------------------------|--------------------------|
| Title                                            |                             |                          |
| Parte Digital del sistema del electrocardiografo |                             |                          |
| Size                                             | Number                      | Revision                 |
| A4                                               |                             |                          |
| Date:                                            | 03/01/2019                  | Sheet of                 |
| File:                                            | C:\Users\...\arduino.SchDoc | Drawn By: Alicia y Jorge |

## Amplificador Para Señales ECG



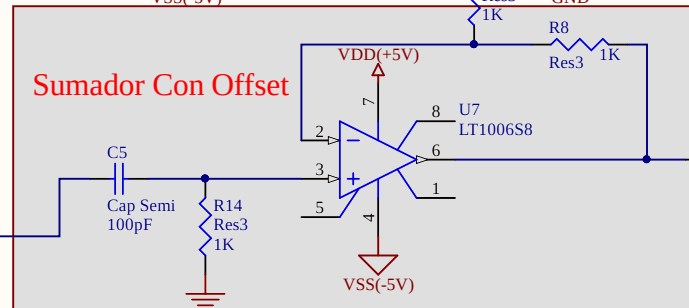
<- Para la adquisición de señales biomédicas, se usa un amplificador de instrumentación debido a su alta impedancia de entrada y rechazo al modo común alto (intenta eliminar la señal de salida indeseada cuando las entradas son iguales).

## Filtro Notch Para Eliminar 50Hz



Eliminamos estas frecuencias ya que las señales biomédicas son de baja intensidad y al mezclarla con estas posibles señales sería difícil analizarlas.

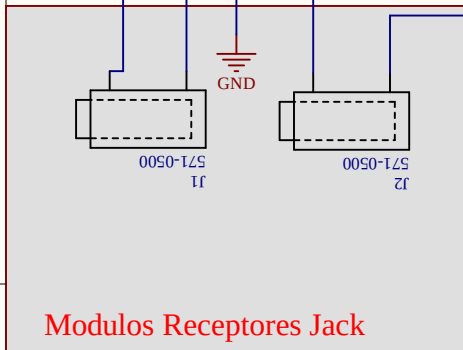
## Sumador Con Offset



Se usa el sumador para elevar la señal con una tensión continuaz ya que el microcontrolador no puede adquirir señales negativas.

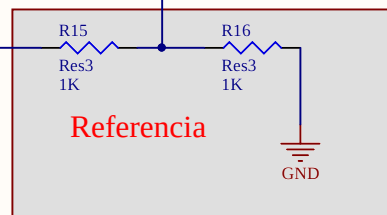
Antes del sumador colocamos un filtro paso alta para eliminar posibles oscilaciones en torno a 1Hz debido al ruido muscular.

## Modulos Receptores Jack

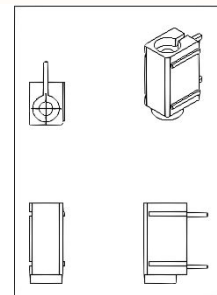


Al módulo receptor enchufaremos el conector banana al que irán conectadas las ventosas.

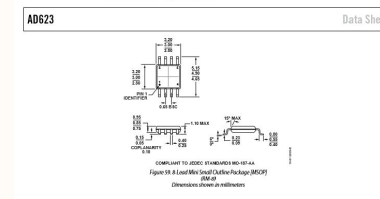
## Referencia



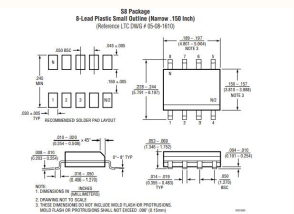
## Banana Socket



## AD 623

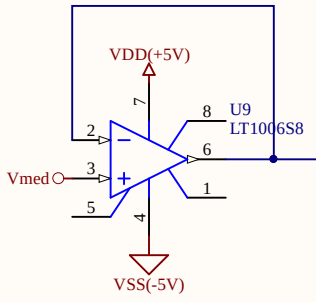


## LT1006S8

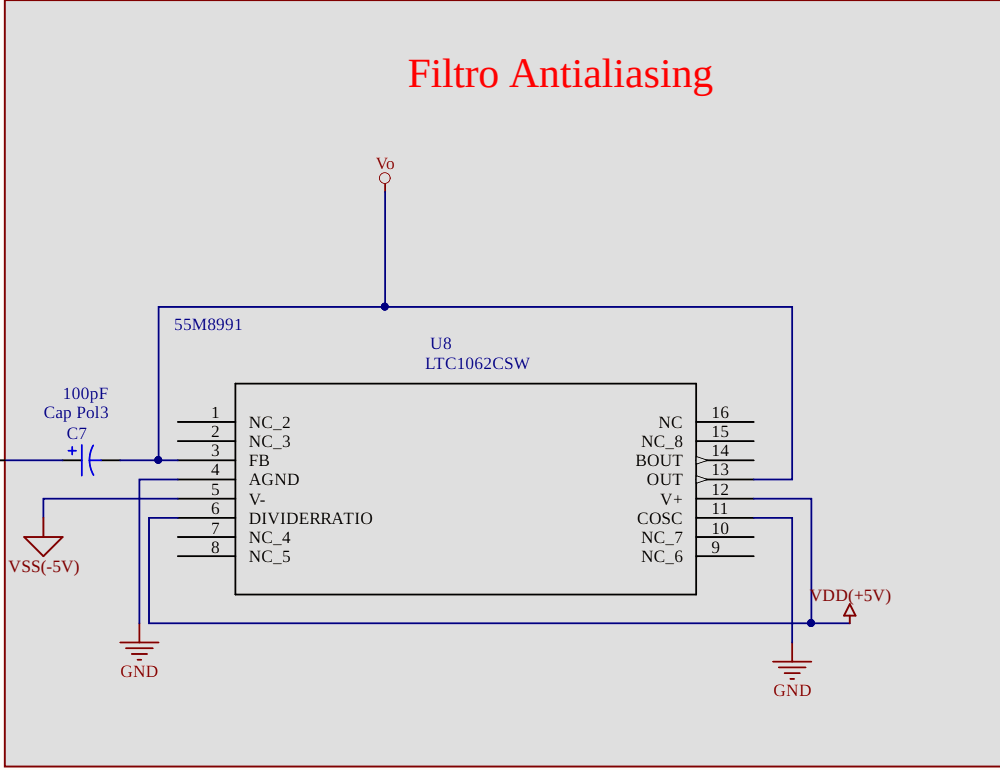


## Title Circuito adquisición electrocardiógrafo 1

| Size  | Number                                   | Revision                 |
|-------|------------------------------------------|--------------------------|
| A4    |                                          |                          |
| Date: | 03/01/2019                               | Sheet of                 |
| File: | C:\Users\...\circuito_adquisicion.SchDoc | Drawn By: Alicia y Jorge |



R17  
Res3  
1K



## Filtro Antialiasing

## LTC1062CSW

### PACKAGE/ORDER INFORMATION

| TOP VIEW                                                                                  | ORDER PART NUMBER        | TOP VIEW                                                                                        | ORDER PART NUMBER |
|-------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------|-------------------|
|                                                                                           | LTC1062CN8               |                                                                                                 | LTC1062CSW        |
| <p>N8 PACKAGE<br/>8-LEAD PDIP<br/>T<sub>J</sub> MAX = 100°C, θ<sub>JA</sub> = 130°C/W</p> | LTC1062MJ8<br>LTC1062CJ8 | <p>SW PACKAGE<br/>16-LEAD PLASTIC SO<br/>T<sub>J</sub> MAX = 150°C, θ<sub>JA</sub> = 90°C/W</p> |                   |
| <b>OBSOLETE PACKAGE</b><br>Consider the N8 Package as an Alternate Source                 |                          |                                                                                                 |                   |

Consult LTC Marketing for parts specified with wider operating temperature ranges.

|                                           |                                            |                          |
|-------------------------------------------|--------------------------------------------|--------------------------|
| Title                                     |                                            |                          |
| Circuito adquisición electrocardiógrafo 2 |                                            |                          |
| Size                                      | Number                                     | Revision                 |
| A4                                        |                                            |                          |
| Date:                                     | 03/01/2019                                 | Sheet of                 |
| File:                                     | C:\Users\...\circuito_adquisicion_2.SchDoc | Drawn By: Alicia y Jorge |

| Comment           | Description                                                                              | Designator                                                                           | Footprint                                                                              | LibRef            | Quantity |
|-------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------|----------|
| Component_1       |                                                                                          |                                                                                      | PCBComponent_1                                                                         | Component_1       | 1        |
| Pila              | Multicell Battery                                                                        | BT1                                                                                  | BAT-2                                                                                  | Battery           | 1        |
| Cap Semi          | Capacitor<br>(Semiconductor SIM Model)                                                   | C1, C2, C5                                                                           | C1206                                                                                  | Cap Semi          | 3        |
| Cap Pol3          | Polarized Capacitor<br>(Surface Mount)                                                   | C3, C4, C7, C8                                                                       | C0805                                                                                  | Cap Pol3          | 4        |
| AD623             |                                                                                          | IC10                                                                                 | DIL08                                                                                  | AD623             | 1        |
| 571-0500          | Socket; 4mm banana;<br>10A; 250VDC; red;<br>Mounting: PCB;<br>Contacts: brass            | J1, J2                                                                               | 571-0500                                                                               | 571-0500          | 2        |
| Res3              | Resistor                                                                                 | R2, R3, R4, R5, R6, R7,<br>R8, R9, R10, R11, R12,<br>R13, R14, R15, R16,<br>R17, R30 | J1-0603                                                                                | Res3              | 17       |
| MC79L05ACD        | 3/8 pin 100mA Fixed _-<br>5V_ Negative Voltage<br>egulator 8-SOIC 0 to<br>125            | U1                                                                                   | SOIC127P600X175-8N                                                                     | MC79L05ACD        | 1        |
| MC7805ACD2TG      | MC7805A Series 1 A 5 V<br>Fixed Output Surface<br>Mount LDO Voltage<br>Regulator - D2PAK | U2                                                                                   | D2PAK_MC7805ACD2TG<br>(Primary)                                                        | MC7805ACD2TG      | 1        |
| LCD 2x16          |                                                                                          | U3                                                                                   | PCBComponent_1                                                                         | LCD2x16           | 1        |
| Arduino Mega 2560 |                                                                                          | U4                                                                                   | ARDUINO_MEGA2560_<br>REV3_-<br>_RETAIL_ARDUINO_ME<br>GA2560_REV3_-<br>_RETAIL(Primary) | Arduino Mega 2560 | 1        |
| LT1006S8          | Precision, Single<br>Supply Operational<br>Amplifier                                     | U5, U6, U7, U9                                                                       | S8_N                                                                                   | LT1006S8          | 4        |
| LTC1062CSW        | Ic Filtr 5th Ordr<br>Lowpass 16soic                                                      | U8                                                                                   | SO-16_SW                                                                               | LTC1062CSW        | 1        |

